Efficient Integration, Validation and Troubleshooting in Multimodal Distributed Diagnostic Schemes, Phase I

Completed Technology Project (2009 - 2009)

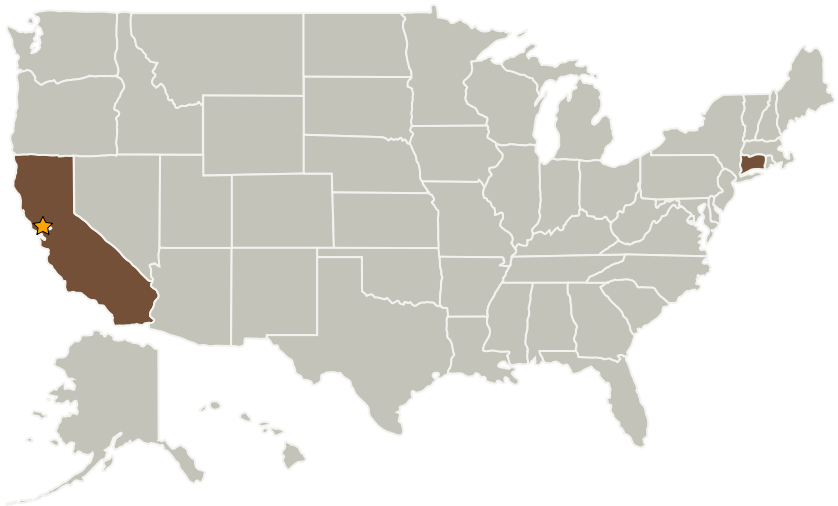
Project Introduction

Qualtech Systems Inc. (QSI) proposes to develop a well defined process for integration of distributed diagnostic schemes. The process includes a set of guidelines to build component diagnostic models/schemes that will undergo integration and an automated/semi-automated tool that will assess the diagnostic efficacy of the integrated scheme so as to suggest modification/redesign of the component diagnostic schemes. Parametric and functional dependencies will be the prime criteria in devising the integration process, while measures of diagnosability (e.g., ambiguity, fault masking, etc) will determine the modification/redesign directives.

Anticipated Benefits

Potential NASA Commercial Applications: Industries and agencies who use complex reschedulable mission plans (such as automotive industry) will also be targeted for commercialization of this product. NASA's current vision to enhance the level of autonomy for vehicle health management and reactive mission planning makes the proposed effort worthy of funding from several branches within it. Among the other agencies, DoD and Air-force and Navy are the most potential customer for the resulting technologies. Large scale military systems (systems of systems) such as NORAD, Space Command ground segments, the Joint Strike Fighter fleet, the Navy shipboard platforms, Submarine Commands and ballistic missile defense (BMD) systems, can be potential areas to field the reactive planning technology. The product is expected to be of commercial value to the manufacturers of DoD and military's remotely guided weapons and reconnaissance systems.

Primary U.S. Work Locations and Key Partners



Efficient Integration, Validation and Troubleshooting in Multimodal Distributed Diagnostic Schemes, Phase I

Table of Contents

Efficient Integration, Validation and Troubleshooting in Multimodal Distributed Diagnostic Schemes, Phase I

Completed Technology Project (2009 - 2009)

Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Qualtech Systems, Inc.	Supporting Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Rocky Hill, Connecticut

Primary U.S. Work Locations	
California	Connecticut

Project Transitions

January 2009: Project Start

July 2009: Closed out

Closeout Summary: Efficient Integration, Validation and Troubleshooting in Multimodal Distributed Diagnostic Schemes, Phase I Project Image

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

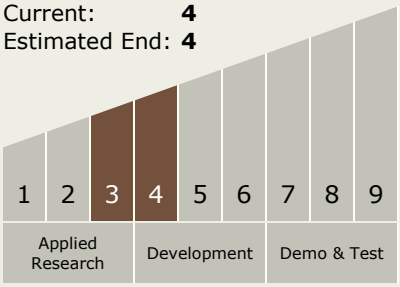
Carlos Torrez

Principal Investigator:

Sudipto Ghoshal

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Efficient Integration, Validation and Troubleshooting in Multimodal Distributed Diagnostic Schemes, Phase I

Completed Technology Project (2009 - 2009)

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.1 Infrastructure Optimization
    - TX13.1.2 Launch/Test/Ops Site Management